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Going to Political Extremes in Response to Boredom

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All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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Abstract

Boredom makes people attempt to re-establish a sense of meaningfulness. Political ideologies, and in particular the adherence to left- versus right-wing beliefs, can serve as source of meaning. Accordingly, we tested the hypothesis that boredom is associated with the stronger adherence to left- versus right-wing beliefs, resulting in more extreme political orientations. Study 1 demonstrates that experimentally induced boredom leads to more extreme political orientations. Study 2 indicates that people who get easily bored with their environment adhere to more extreme ends of a political spectrum compared to their less easily bored counterparts. Finally, Study 3 reveals that the relatively extreme political orientations among those who are easily bored can be attributed to their enhanced search for meaning. Overall, our research suggests that extreme political orientations are, in part, a function of boredom's existential qualities.

Keywords: boredom, meaning, political orientation, ideology, existential psychology

Going to Political Extremes in Response to Boredom

It is not pleasant to be bored (Smith & Ellsworth, 1985). In fact, people who are prone to boredom are more likely to be depressed (Farmer & Sundberg, 1986), hostile and anxious (Vodanovich, Verner, & Gilbride, 1991), lonely (Moore & Schultz, 1983), aggressive (Dahlen, Martin, Ragan, & Kuhlman, 2004; Rupp & Vodanovich, 1997), and may find life and their behaviors rather meaningless (Fahlman, Marcer, Gaskocski, Eastwood, & Eastwood, 2009; Van Tilburg & Igou, 2012; for a review see Vodanovich, 2003).

Notwithstanding these horrid correlates, the everyday life experience of boredom also has an important self-regulatory function (Van Tilburg & Igou, 2013a). Boredom motivates people to alter their situation and fosters the engagement in activities that seem more meaningful than those currently at hand (Van Tilburg & Igou, 2011a; Van Tilburg, Igou, & Sedikides, 2013; Sansone, Weir, Harpster, & Morgan, 1992; Smith, Wagaman, & Handley, 2009). In the present research, we examine one such response to the search for meaning stirred by boredom, with particular relevance to societies: adopting more extreme political orientations. Prior to expositing the potential impact of boredom on these ideologies, we first consider boredom's psychological signature.

Boredom

Boredom is a common negative emotion (e.g., Russell, Lewicka, & Niit, 1989) that is typically low in arousal (Mikulas & Vodanovich, 1993; cf. London & Schubert, 1972). It involves an appraisal of the environment with low effort and little attention, that is, people who are bored have little on their minds yet have a good understanding of what is going on (Smith & Ellsworth, 1985). Its unpleasant sentiment is characterized by thoughts revolving around a situation or activity being uninteresting (Sansone et al., 1992), not sufficiently stimulating (Leong & Schneller, 1993), non-challenging (Csikszentmihalyi, 1990), or, more generally, to be devoid of purpose (Barbalet, 1999). This cognitive side of boredom is complemented by a motivational aspect: bored people are particularly eager to seek purpose by either modifying their current activity or abandoning it in favor of alternative courses of action (Moynihan et al., 2015; Van Tilburg & Igou, 2011a, 2012).

From a self-regulatory perspective, boredom can be understood as an experience that accompanies the appraisal of a lack of meaningful engagement at hand and re-calibrates the person towards goals of greater value (Van Tilburg & Igou, 2013a, 2013b; Van Tilburg et al., 2013). Herein lays boredom's functionality: the unpleasant experience serves as cue that redirects people's behaviors towards the pursuit of acts with greater significance. As phrased by Barbalet (1999): "Boredom emotionally registers an absence of meaning and leads the actor in question towards meaning" (p. 631). In this sense, boredom resembles Plato's proverbial gadfly (attributed to Socrates), whose stings stir up a critical reflection on current actions in favor of more meaningful engagement.

Several characteristics distinguish boredom from other negative affective states such as frustration, anger, and sadness (see Van Tilburg & Igou, 2012). For example, bored people feel restless yet lack challenge, which is more or less opposed to the typical sense of over-challenge among those who are frustrated. In contrast to being angry, bored people do not feel particularly inclined to hurt others, although aggressive manifestations may follow from a lack of impulse control among those who become easily bored (Dahlen et al., 2004; Rupp & Vodanovich, 1997). At its core, however, the element of boredom that uniquely distinguishes it from many other experiences is the recognition of a lack of purpose and the subsequent search for meaningful engagement (Van Tilburg & Igou, 2012).

Recent finding attest to the above described implication of boredom on meaningful occupations. For example, Van Tilburg and colleagues (2013) found that the engagement in boring activities (e.g., transcribing literature references) solicited nostalgic reverie, a well-established source of subjective meaningfulness (Juhl, Routledge, Arndt, Sedikides, Wildschut, 2010; Routledge et al., 2011; Sedikides, Wildschut, & Baden, 2004; Wildschut, Sedikides, Arndt, & Routledge, 2006). Similar results were obtained in the context of social identification processes (Van Tilburg & Igou, 2011a). Specifically, boredom increased the valuation of meaning-laden in-group representations such as cultural symbols, sometimes at the expense of outgroups. Indeed, the effect of boredom in each of these examples was mediated by people's increased search for meaning. What can be extrapolated from these various findings is that boredom, at least when elicited by situational characteristics (e.g., dull

activities; Van Tilburg & Igou, 2011a), spurs the search for ideas and activities that increase a sense of meaningfulness.

Meaning in Political Ideology

Political ideologies stand at the very basis of society. The law, the distribution of resources, and the delicate balance between people's rights and obligations are fundamentally shaped by the negotiation of different ideologies. Within recent years, psychologists turned their attention more and more towards the study of extreme political beliefs and radicalism in the face of uncertainty and threats (e.g., Brandt, Evans, & Crawford, 2015; Crawford & Pilanski, 2012; Toner, Leary, Asher, & Jongman-Sereno, 2013; Van Prooijen, Krouwel, & Pollet, 2015). Events such as the 9/11 attacks in New York and the 2008 economic crisis have spurred an interest in, and demonstrated the importance of, understanding how people's beliefs are affected by uncertainty and threat (e.g., Hogg, Kruglanski, & Van den Bos, 2013).

The emerging picture from this line of research is that perceived threats tend to foster more extreme political orientations. For example, Castano, Leidner, Bonacossa, and colleagues (2011) found that priming participants with death polarized the beliefs held by liberals and conservatives, respectively. Broadly consistent with these findings, Hogg, Meehan, Farquharson (2010) observed that people whose self-relevant values were challenged subsequently identified more strongly with radical groups. Even seemingly subtle challenges to people's beliefs can invoke stronger commitment to political views. Proulx and Major (2013), for example, found that reverse colored playing cards increased liberal judgments (e.g., endorsing affirmative action) amongst liberal participants.

Why do people become more extreme in their political orientations when faced with uncertainty or other threats? One prominent reason is that people turn to political ideologies as a source of certainty or coherence; political views can help people to make sense of the world. For example, people who hold extreme political views report a greater sense of understanding, even if their explanations can be overly simplistic or incorrect (Fernbach, Rogers, Fox, & Sloman, 2013). Likewise, identification with radical groups (Hogg et al.,

2010) or the enhanced value placed on ingroup symbols (Van Tilburg & Igou, 2011a) may be explained by people's desire to regain a sense of meaning when their views are challenged.

Baumeister (1991) defined meaning as a "shared mental representation of possible relationships among things, events, and relationships" (p. 15), a definition that resonates with more recent work on the topic (e.g., Heine, Proulx, & Vohs, 2006). People appraise the world through exploratory frameworks and consider something to be meaningful to the extent that it conforms to these existing frameworks (Proulx & Heine, 2006). Examples of these frameworks include religion (Norenzayan, Dar-Nimrod, Hansen, & Proulx, 2009; Pyszczynski et al., 2006), morality (Van den Bos, 2001, 2004), and, indeed, political ideologies (Greenberg et al., 1992; Jost et al., 2004; Van Tilburg & Igou, 2011a). Given that political ideologies partly reflect people's understanding of how the world works, how it should work, and how the self and one's group are and should be positioned, they can offer a meaningful foothold in the face of uncertainty and existential distress (Jost et al., 2004; Pyszczynski, Greenberg, & Koole, 2004).

Indeed, McGregor, Nash, Mann, and Phills (2010) proposed that people turn to ideologies, worldviews and other meaning-proving ideals in the face of threats. According to their reactive approach motivation (RAM) account, people's ideals provide abstract goals that "provide an alternative focus for eager absorption" (p. 133), which effectively shields individuals from the uncertainty that comes with threats. For example, MacGregor, Prentice, and Nash (2013) found that threats (e.g., a mortality threat) resulted in more extreme ideologies. Consistent with this proposition, various scholars have postulated an impact of 'existential threats'—sources of concerns about the perceived meaning in life—on political ideology or behavior (e.g., Becker, 1971; Fromm, 1941, 1947, 1973; Jost, Glaser, Kruglanski, & Sulloway, 2003; Jost et al., 2004). Other empirical studies in the area of existential psychology, many in the context of terror management theory (Greenberg, Koole, & Pyszczynski 2004; Greenberg, Pyszczynski, & Solomon, 1986; 1997), identified that people cling to political ideologies to bolster meaning (e.g., Greenberg & Jonas, 2003; Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992; Landau et al., 2004; Jost, Fitzsimons, & Kay,

2004; Pyszczynski, Abdollahi, Solomon, Greenberg, Cohen, & Weise, 2006; Van Tilburg & Igou, 2011b).

If existential concerns make people resort to political ideologies in their attempt to re-establish meaning, then how might this be expressed? Previous research shows that these concerns affect people's political orientations, in particular left-wing versus right-wing stances and liberal versus conservative attitudes. Greenberg and colleagues (1992), for example, found that mortality salience—a profound existential threat—increased subsequent commitment to politically left-wing and right-wing beliefs (see also Greenberg & Jonas, 2003; cf. Jost, et al., 2003). Essentially, these polarized political attitudes reflect a greater belief in and commitment to relevant meaningful worldviews, which mitigate the existential threats.

The Role of Situational Boredom

The experience of boredom brought about by environmental sources (e.g., meaningless activities) triggers a longing for meaningfulness of one's activity and existence (e.g., Barbalet, 1999; Van Tilburg & Igou, 2011a, 2012; Van Tilburg et al., 2013). One important way to re-establish a sense of meaningfulness is by bolstering pre-existing ideological beliefs (Greenberg et al., 1992; Landau et al., 2004; McGregor et al., 2010), which leads to increased coherence of belief and the polarization of attitudes (e.g., Lord, Ross, & Lepper, 1979). In context of political beliefs, boredom may thus similarly contribute to the endorsement of extreme views. It is important, though, to note that our proposed effects of boredom on political orientations focuses on boredom that is elicited by the situation. Psychometric examinations of boredom (Vodanovich 2003; Vodanovich & Kass, 1990) often distinguish between boredom rooted in the situation, for example because it does not elicit interest or challenge, versus boredom that can be attributed to more internal sources, for example an inability to come up with novel ideas. Given that it is especially situational boredom that has been implicated in meaning search processes (see Van Tilburg & Igou, 2012), we argue that it is this form of boredom in particular that contributes to extreme political orientations.

The above hypothesis was tested in three studies. In Study 1, we experimentally induced boredom using a validated procedure (Van Tilburg & Igou, 2012) to examine the impact of situational boredom on political orientations. Study 2 consisted of a large examination of the association between individual differences in susceptibility to situational boredom and political orientations, controlling for general positive and negative affect. In Study 3, we tested whether the search for meaning in life indeed mediated the association between boredom and political extremity. In addition, we controlled for a range of relevant factors besides general positive and negative affect, including need for structure, need for cognition, and the presence of meaning in life. Note that our examination of the link between boredom and political ideologies focused on the general orientations “left-wing/liberal” versus “right-wing/conservative”, as done in much prior social psychological research on political ideologies (e.g., Hogg et al., 2010; Jost et al., 2003, 2004).

Study 1: Situational Boredom Makes Political Orientations More Extreme

The first study was designed to test the impact of situational boredom on political orientations. We predicted that people become more extreme in their political stances when they are bored than when they are not bored. Therefore, we predicted that high levels of situational boredom would make political orientations more extreme than relatively low levels of situational boredom.

Method

Participants and design. Ninety-seven people on the University campus were willing to participate when prompted ($M_{\text{age}} = 27.38$, $SD = 9.96$; 64 women, 33 men; 88 Irish, 9 non-Irish). Of these, 71 categorized themselves as politically left-wing/liberal whereas 26 saw themselves as politically right-wing/conservative. Participants were randomly assigned to the high or low boredom condition, resulting in a 2 (political orientation: liberal vs. conservative) \times 2 (boredom: high vs. low) quasi-experimental design.

Materials and procedure. After providing informed consent, participants reported demographic information (age, gender, nationality), and they gave an overall dichotomous indication of their political orientation by ticking one of two boxes labeled “left-wing/liberal” and “right-wing/conservative”. A boredom induction succeeded this classification of political

orientations. Specifically, participants transcribed either 10 references (high boredom) to literature about concrete mixtures (e.g., “Kosmatka, S.H.; Panarese, W.C. (1988). Design and control of concrete mixtures. Skokie, IL”), or copied only 2 of these (low boredom). This procedure was used based on Van Tilburg and Igou (2012), who found that the manipulation induces state boredom in particular, and not sadness, frustration, or anger. Next, participants indicated how boring the task was (“To what extent did the task you just completed make you feel bored?”; 1 = *not at all*, 7 = *very much*; e.g., Van Tilburg et al., 2013). After this manipulation check, participants in both boredom conditions indicated their political orientation on a two-item measure (“On the political spectrum, I would consider myself to be”, 1 = *liberal*, 7 = *conservative*; “On the political spectrum, I would consider myself to be”, 1 = *left winged*, 7 = *right winged*; $r = .58, p < .001$). Afterwards, participants were thanked and debriefed.

Results and Discussion

Boredom. A one-way ANOVA with the boredom condition (high vs. low) as independent variable and task boredom as dependent variable indicated significant differences between the conditions, $F(1, 95) = 22.11, p < .001, \eta^2 = .19$. Specifically, the high boredom condition yielded higher experienced boredom ($M = 6.02, SD = 1.26$) compared to the low boredom condition ($M = 4.55, SD = 1.77$).¹

Political orientations. To examine boredom’s impact on political orientations, a two-way ANOVA was conducted. This analysis included the boredom condition and the pre-manipulation classification as either left-wing/liberal or right-wing/conservative as independent variables, with the post-manipulation ratings of political orientations as dependent variable. Reflected in Figure 1, this analysis yielded a significant main effect of general political orientation, $F(1, 91) = 86.64, p < .001, \eta^2 = .49$, indicating that participants who had initially categorized themselves as left-wing/liberal rated themselves as overall more

¹ An analysis in which participants’ general political orientation was added as independent variable and age, and gender were included as covariates indicated no significant differences in experienced boredom across political orientation ($F < 1$) and also no interaction effect, $F(1, 91) = 1.86, p = .177, \eta^2 = .02$. Also age and gender yielded no significant associations with boredom (both $F < 1$). Importantly, the main effect of boredom remained significant, $F(1, 91) = 8.73, p = .004, \eta^2 = .09$.

left-wing/liberal (vs. right-wing/conservative; $M = 2.62$, $SD = 0.88$) relative to those who had originally categorized themselves as right-wing/conservative ($M = 4.52$, $SD = 0.92$). There was no main effect of boredom ($F < 1$). Most importantly, the interaction between the boredom condition and general political orientations was significant, $F(1, 91) = 4.15$, $p = .045$, $\eta^2 = .04$, indicating a polarization of political orientations as a function of boredom among left-wing/liberals and right-wing/conservatives as a whole.² More specifically, the left-wing/liberals in the low boredom condition ($M = 2.86$, $SD = 0.90$) were less extreme in their beliefs relative to those in the high boredom condition ($M = 2.41$, $SD = 0.81$), $t(91) = 2.19$, $p = .031$, $d = .46$. The contrast for right-wing/conservative participants in particular did not indicate a significant difference between low boredom ($M = 4.37$, $SD = 0.93$) and high boredom ($M = 4.75$, $SD = 0.92$) condition, $t(91) = 1.08$, $p = .285$, $d = .23$. A potential reason why this contrast for conservative participants did not reach significance is that this subgroup of participants was relatively small. Specifically, our sample yielded a relatively low amount of conservative/right-wing oriented participants resulting in low statistical power to identify an effect. In a follow-up analysis we tested whether the magnitudes of polarization amongst the liberal/left-wing versus conservative/right-wing participants differed, which was not the case, $t(91) = 0.171$, $p = .857$, $d = 0.04$. We advise some caution for interpreting a systematic difference between the groups' response to boredom.

Overall, these results suggest that induced situational boredom leads to the polarization of political orientations, albeit the evidence was stronger for the liberal/left-wing than for conservative/right-wing participants. In Study 2, we examined the link between individual differences in boredom proneness and political orientations, and the potential impact of affect.

Study 2: Boredom Proneness Predicts Political Extremity

In Study 2, we tested whether people's tendencies to experience boredom are associated with more extreme political orientations. Consistent with our reasoning and Study

² The same analysis with gender and age as covariates indicated a significant positive effect of age, $F(1, 89) = 12.41$, $p = .001$, $\eta^2 = .12$, and no significant gender differences ($F < 1$). Most importantly, the boredom \times political classification interaction remained significant, $F(1, 89) = 6.01$, $p = .016$, $\eta^2 = .06$.

1, we focused on individual differences in *situational* boredom proneness. We approached this empirical question using a large sample size. Besides boredom proneness and political orientations we also assessed positive and negative affect to rule out the possibility that these general affective experiences, rather than boredom in particular, are responsible for the proposed effects.

Method

Participants and design. Eight-hundred and fifty-nine participants living in Ireland ($M_{age} = 27.22$, $SD = 12.36$; 451 women, 404 men, 4 undisclosed; 791 Irish, 68 non-Irish) took part in this brief correlational study.

Materials and procedure. The researchers and their assistants approached people living in Ireland on and off-campus and asked them whether they wanted to take part in a small study on general attitudes. Questionnaires were handed or sent to participants in paper and pencil form. After providing informed consent, participants completed the boredom proneness scale (Farmer & Sundberg, 1986; Vodanovich & Kass, 1990), which is often divided into boredom as a result of under-stimulating environment (e.g., “Having to look at someone’s home movies or travelling slides bores me tremendously”; 1 = *never*, 7 = *most of the time*; $\alpha = .69$), and boredom as a result of a person’s own inability to generate interesting and novel ideas (e.g., “I have projects in mind all the time, things to do”, reversed; $\alpha = .68$; Dahlen, Martin, Ragan, & Kuhlman, 2004; Vodanovich, 2003). We will refer to these boredom types as ‘situational boredom’ and ‘intrinsic boredom,’ respectively.³ Note that the main predictor in our study is ‘situational boredom’, that is, the boredom attributed to outside sources that we predict to increase polarization in political orientations, consistent with prior research attesting the impact of situation-elicited boredom on meaning-regulation (e.g., Van Tilburg & Igou, 2011a; Van Tilburg et al., 2013).

The boredom proneness measure was followed by the assessment of general affect using the positive and negative affect schedule short form (PANAS-X; MacKinnon, Jorm,

³ These constructs are sometimes called ‘external stimulation’ and ‘internal stimulation,’ yet we adopted different names given that the scale measures boredom, not stimulation.

Christensen, Korten, Jacomb, & Rodgers, 1999). We computed separate scores for positive (e.g., “To what extent do you generally feel excited?”, 1 = *not at all*, 5 = *extremely*; $\alpha = .72$) and negative affect (e.g., “To what extent do you generally feel distressed?”, 1 = *not at all*, 5 = *extremely*; $\alpha = .84$). Afterwards, we assessed general political orientations using the identical two-item measure as in Study 1 ($r = .65$, $p < .001$). In addition to an overall average reflecting political orientation, an extremity score was calculated by computing the absolute difference of participants’ scores from the scale midpoint, as done in prior research (e.g., Jost et al., 2003). After participants reported demographic information, they were thanked for their participation and were debriefed.

Results and Discussion

We standardized all relevant composites (for their correlations, see Table 1). Two multiple regression analyses were then conducted to examine the association between boredom and political extremity. Specifically, the first model included proneness to situational boredom as predictor of political extremity, with general political orientation as covariate.⁴ Positive and negative affect as well as intrinsic boredom, age, and gender were included as additional predictors in the second model.

The first regression analysis (Table 2) evidenced the hypothesized association between proneness to situational boredom and political extremity, $B = 0.11$, $S_e = 0.03$, $t(831) = 3.46$, $p = .001$. This finding indicates that people prone to boredom due to situational causes are more extreme in their political orientations. A significant negative association also emerged between general political orientation and extremity, $B = -0.45$, $S_e = 0.03$, $t(831) = 14.62$, $p < .001$, indicating that left-wing/liberal orientations were on average more extreme

⁴ Whenever we examined associations of variables with political extremity we controlled for general political orientations to obtain accurate estimates. Specifically, when a sample is not equally comprised of left-wing/liberal and right-wing/conservative participants (in our case participants were on average more left-wing/liberal) then a zero-order correlation between a variable and political *extremity* can result from a association with *general* political orientation instead. Controlling for general political orientation takes care of this potential statistical artifact. Not controlling for general political orientation in our analysis yielded very similar results and details can be provided on request.

than right-wing/conservative orientations, which essentially reflects that our sample was overall more left-wing/liberal.

In the second model we controlled for positive affect, negative affect, intrinsic boredom, age, and gender (0 = male, 1 = female). The positive association between boredom in response to situational characteristics and political extremity remained significant, $B = 0.12$, $S_e = 0.03$, $t(816) = 3.65$, $p < .001$, as did the previously observed negative association between general political orientation and extremity, $B = -0.46$, $S_e = 0.03$, $t(816) = 14.85$, $p < .001$. There was a marginal association with political extremity with positive affect, $B = 0.06$, $S_e = 0.03$, $t(816) = 1.85$, $p = .065$, and a non-significant association with negative affect, $B = 0.02$, $S_e = 0.03$, $t(816) = 0.72$, $p = .471$, as well as with proneness to boredom in response to internal characteristics, $B = -0.04$, $S_e = 0.03$, $t(816) = 1.03$, $p = .302$. Age was positively associated with political extremity, $B = 0.09$, $S_e = 0.03$, $t(867) = 2.79$, $p = .005$, and men tended to be marginally more extreme in their attitudes than women, $B = -0.08$, $S_e = 0.04$, $t(816) = 1.92$, $p = .056$. Importantly, we concluded that these factors do not account for the extremer levels of political orientations observed among people who are highly vulnerable to situational boredom relative to their less easily bored counterparts.⁵ These results confirm the predicted link between boredom and polarization of political orientations.

Study 3: Searching for Meaning in Political Ideologies When Bored

Study 1 indicates that situational boredom is a causal predecessor of the endorsement of extreme political orientations and Study 2 attests that people who are easily bored tend to hold more extreme political orientations. Study 3 was designed to examine the proposed

⁵ We also explored the possibility that the link between boredom and political extremity was due to a lack of arousal/stimulation typically associated with boredom (Mikulas & Vodanovich, 1993). Several of the 10 items from the PANAS-X scale referred to high arousal states, and boredom was negatively correlated with various of these (e.g., excitement: $r = -.10$, $p < .003$; alertness: $r = -.12$, $p = .001$). We therefore ran an exploratory model in which we estimated the association between boredom and political extremity controlling for each individual PANAS-X items (as well as overall political orientation). Boredom's positive association with political extremity remained significant, $B = 0.13$, $S_e = 0.03$, $t(795) = 4.03$, $p < .001$, and, importantly, none of the individual items correlated significantly with political extremity ($p \geq .16$), with the exception of a marginal positive associations between feeling upset and political extremity, $B = -0.07$, $S_e = 0.04$, $t(795) = 1.78$, $p = .08$, and between feeling determined and political extremity, $B = 0.06$, $S_e = 0.04$, $t(795) = 1.70$, $p = .09$. Thus, none of the markers of high/low arousal mediated boredom influence.

underlying psychological process: the search for meaning, which is spurred by boredom (Barbalet, 1999; Van Tilburg & Igou, 2011a; 2012; 2013a; Van Tilburg et al., 2013) and finds its resource in political ideology (Greenberg et al., 1992; McGregor et al., 2010).

Other factors could influence the impact that boredom has on political orientations. Personal need for structure and need for cognition are important positive correlates of the endorsement of political orientations (e.g., Jost et al., 2003; Kruglanski, Pierro, Mannetti, & DeGrada, 2006; Napier & Jost, 2008; Schaller, Boyd, Yohannes, & O'Brien, 1995; Smith & Gordon, 1998), and we included them in our design accordingly. As in Study 2, we assessed general negative and positive affective sentiments to ensure that there is a unique impact of boredom on political orientation, above and beyond general affective influences. We chose a correlational design based on individual differences in boredom proneness to test the meditational models.

Method

Participants and design. Three-hundred participants living in Ireland ($M_{\text{age}} = 28.22$, $SD = 12.76$; 167 women, 130 men, 3 undisclosed; 220 Irish, 80 non-Irish) took part in this brief correlational study.

Materials and procedure. The recruitment of participants was similar to that of Study 2. After providing informed consent, participants completed the boredom proneness scale (Farmer & Sundberg, 1986; Vodanovich & Kass, 1990), divided into situational and intrinsic boredom as done in Study 2. This measure was followed by the meaning in life questionnaire (Steger, Frazier, Oishi, & Halpern, 2006), which consists of a 5 item presence of meaning scale (e.g., "I understand my life's meaning", 1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .86$), and a 5 item search for meaning scale (e.g., "I am searching for meaning in my life"; $\alpha = .89$). Note that these constructs are conceptually distinct, have different correlates, and typically yield a small, if any, negative association (Steger et al., 2006).

Next, the 12 item personal need for structure scale was included (Neuberg & Tewsom, 1993; e.g., "I enjoy having a clear and structured mode of life", 1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = .77$), succeeded by the 18-item need for cognition scale (Cacioppo, Petty, & Kao, 1984; e.g., "I would prefer complex to simple problems"; 1 =

strongly disagree, 7 = *strongly agree*; $\alpha = .91$). General positive and negative affect were assessed using the positive ($\alpha = .78$) and negative ($\alpha = .83$) affect schedule short form (PANAS-X, MacKinnon et al., 1999) as in Study 2. This was followed by the two-item measure of general political orientations identical to the one used in Studies 1 and 2 ($r = .34$, $p < .001$). Again, besides an overall average, political extremity was calculated by computing the absolute difference of participants' scores from the scale midpoint (Jost et al., 2003). After reporting demographic information, participants were debriefed and thanked.

Results and Discussion

Prior to testing the proposed mediation of the association between boredom and political extremity by search for meaning, we standardized all relevant composites and performed an initial examination of their correlations (see Table 3). Of primary importance, situational boredom was associated with elevated search for meaning ($r = .21$, $p < .001$), reduced meaning in life ($r = -.39$, $p < .001$), less positive affect ($r = -.30$, $p < .001$), more negative affect ($r = .20$, $p = .001$), and, as in Study 1, higher levels of political extremity when controlling for general political orientation ($r = .16$, $p = .007$). Also, the search for meaning in life yielded a significant positive partial association with political extremity ($r = .15$, $p = .010$). Thus, situational boredom involved more extreme political orientations, both of which were associated with the search for meaning in life.⁶

Main mediation model. We tested whether the predicted association between situational boredom and political extremity was mediated by the search for meaning in life. To this end, we subjected these variables to a mediation analysis using the procedure developed by Hayes (2012; Model 4; see Figure 2). Situational boredom was specified as predictor of political extremity, with the search for meaning in life as mediator. General political orientation was included as covariate, which is equivalent to including it as additional predictor (Hayes, 2012, p. 6). The results of this analysis revealed that situational

⁶ Again, we explored whether any high/low arousal items from the PANAS-X mediated boredom's association with political extremity. A regression analysis in which we controlled for each individual PANAS-X items (as well as overall political orientation) still yielded boredom's positive association with political extremity, $B = 0.13$, $S_e = 0.06$, $t(265) = 2.00$, $p = .047$. None of the individual items correlated significantly with political extremity ($p \geq .18$). None of the high/low arousal states mediated boredom's influence.

boredom positively predicted search for meaning, $B = .20$, $S_e = .06$, $t(291) = 3.52$, $p < .001$, which subsequently predicted higher levels of political extremity, $B = 0.12$, $S_e = .06$, $t(290) = 2.08$, $p = .038$. In addition, the total association between situational boredom and political extremity, $B = 0.15$, $S_e = .06$, $t(292) = 2.70$, $p = .007$, became smaller due to the mediator, $B = 0.12$, $S_e = 0.06$, $t(290) = 2.07$, $p = 0.039$. Most importantly, 5,000 accelerated and bias-corrected bootstraps (Hayes, 2009) confirmed the positive indirect effect to be significant, $0.003 < B_{95} < 0.059$, indicating that the positive association between boredom and political extremity was indeed significantly mediated by the enhanced levels of search for meaning.

Additional analyses. The above results are consistent with the hypothesis that search for meaning in life mediates the association that situational boredom has with polarization of political orientations. However, as evident from the correlations between the variables (Table 3), various correlations emerged between the presence of meaning in life, intrinsic boredom, affect, need for cognition, and the variables in our main mediation model.

To test whether the mediation by meaning search went above and beyond these other factors of potential influence, we conducted a subsidiary mediation model. In this model, the presence of meaning in life, intrinsic boredom, affect, need for cognition, and need for structure, as well as gender (0 = *male*; 1 = *female*) and standardized age were added as covariates (Hayes, 2012, Model 4).

Consistent with the main mediation model, the results of the subsidiary model yielded a significant association between situational boredom and search for meaning, $B = 0.18$, $S_e = 0.06$, $t(268) = 2.89$, $p = .004$, as well as a significant association between meaning search and political extremity, $B = 0.15$, $S_e = 0.07$, $t(267) = 2.24$, $p = .026$. Other noteworthy new findings included that general political orientation predicted lower meaning search, $B = -0.11$, $S_e = 0.06$, $t(268) = 2.06$, $p = .040$, need for cognition was associated with a higher search for meaning, $B = 0.23$, $S_e = 0.06$, $t(268) = 3.68$, $p < .001$, and age was associated with a lower meaning search, $B = -0.37$, $S_e = 0.06$, $t(268) = 5.96$, $p < .001$. Moreover, general political orientation again yielded a significant association with political extremity, $B = -0.13$, $S_e = 0.06$, $t(267) = 2.15$, $p = .033$, and a significant partial relation emerged between presence of meaning in life and political extremity, $B = -0.16$, $S_e = 0.08$, $t(267) = 2.05$, $p = .042$.

Interestingly, a significant indirect effect of need for cognition on political extremity emerged through meaning search, $0.007 < B_{95} < 0.078$. Most importantly, the indirect effect of situational boredom on political extremity through meaning search remained significant, $0.004 < B_{95} < 0.073$.

Overall, the results of the main and subsidiary mediation models indicated that the search for meaning mediated the effect of situational boredom on political extremity, even after controlling for need for structure, need for cognition, the presence of meaning in life, positive and negative affect, and intrinsic boredom. In addition, an interesting indirect effect was found from need for cognition on political extremity through meaning search. Although need for cognition was not of primary interest in the current study, perhaps part of the link between need for cognition and political orientations might involve meaning-regulation mechanisms. Most importantly, however, both models supported that search for meaning in life mediates the association that situational boredom has with political extremity.

General Discussion

The results of three studies support the hypothesis that situational boredom is associated with, and leads to, the endorsement of extreme political orientations. Study 1 indicated that induced boredom acts as causal predecessor of more extreme political orientations, albeit the evidence was stronger for the relatively large liberal/left-wing group compared to the comparatively small conservative/right-wing group of participants. Consistently, Study 2 evidenced that people vulnerable to situational boredom tend to endorse more extreme political orientations compared to their less boredom prone counterparts, irrespective of general differences in positive and negative affect, age, or gender. Examining the underlying process, Study 3 subsequently supported our hypothesis that the link between situational boredom and political extremity can be explained by an intensified search for meaning in life characteristic of people who become easily bored. Moreover, this mediated path remained reliable after controlling for various relevant factors, including need for structure, need for cognition, positive and negative affect, a lack of perceived meaning, age, gender, and internal sources of boredom (e.g., being unimaginative

or uncreative). Overall, the results thus support our hypothesis that boredom makes political orientations more extreme, motivated by bored people's search for meaning.

Contributions, Limitations, and Future Directions

The causes, consequences, and experiences of boredom have received relatively little attention in comparison to those of other emotions (Vodanovich, 2003; Van Tilburg & Igou, 2012). Not surprisingly, recent findings that attest to boredom's various, and often negative, implications has intensified the study of this emotion. With this due empirical attention, boredom becomes established as an emotion with important self-regulatory implications (e.g., Eastwood, Cavaliere, Fahlman, & Eastwood, 2007; Nett, Goetz, & Hall, 2011; Van Tilburg & Igou, 2012, 2013a, 2013b; Van Tilburg et al., 2013). Whereas boredom may have been dismissed as mere disinterest, inattention, or passivity in the past, a new picture emerges that illuminates boredom as a functional experience that moves people towards new challenges and purposes (Barbalet, 1999; Smith et al., 2009; Van Tilburg & Igou, 2011a; Van Tilburg et al., 2013). Aligning with this metamorphosis of boredom, the current research illustrates that boredom, once dismissed as a mere nuisance, bears relevance to nothing less than people's political views. Moreover, the finding that the search for meaning mediated the association between political extremity establishes boredom as an experience that yields existential self-regulatory implications alongside mortality salience (Greenberg et al., 2004), uncertainty (Van den Bos, 2004), ostracism (Case & Williams, 2004), and nostalgia (Sedikides et al., 2004). Thus, our findings place boredom amongst the growing body of existential states—experiences that are relevant to people's strongly desired conviction that life is meaningful (Hart, 2014; Proulx, Inzlicht, & Harmon-Jones, 2012; Nash, McGregor, & Prentice, 2011).

We argued that situational boredom is in part responsible for the endorsement of political ideologies, but what about non-situational boredom? Non-situational boredom is attributed to the self as being unable to overcome the situation (Vodanovich, 2003). Such internal attributions of experiential states are less likely to be related to the more external explanations of the state of affairs by political ideologies.

In Study 1, we found an overall polarization effect of boredom on political orientations (i.e., more extreme orientations when bored). However, the contrast for

conservative/right-wing participants did not reach significance. We suspect that this is due to the relatively low amount of conservative/right-wing participants that our student sample of this Study contained. Learning from this limitation, we recommend future researchers to include a large variety of sub-populations to ensure a balanced representation of the political spectrum.

In Study 3, we found that the search for meaning in life mediated boredom's association with political extremity. Can the *presence* of meaning in life be argued to mediate this association, independent of meaning search? Whereas the search for meaning is an established consequence of boredom evident from experimental research (Van Tilburg & Igou, 2011a; Van Tilburg et al., 2013), there exists ambiguity on whether the presence of meaning in life is as well. Boredom involves an appraised lack of meaning (Van Tilburg & Igou, 2012). However, lacking meaning in life additionally predicts *future* experiences of boredom (Fahlman et al., 2009) and has been treated as source of boredom accordingly (Van Tilburg & Igou, 2012). Future research should further examine the causal relationship between boredom and the presence of meaning in life.

Study 3 evidenced an unexpected positive *indirect* effect of need for cognition on political extremity, though not a direct effect. Although caution is advised in the interpretation of this process, this finding may suggest that people who enjoy complex thought and abstract problem solving find such challenges in contemplating political ideologies via existential questions about life's meaningfulness. Again, this complimentary finding begets further study.

We hypothesized and found that situational boredom is associated with, and leads to, more extreme political attitudes. This hypothesis was informed by the notion that boredom fosters a search for meaning (Barbalet, 1999; Van Tilburg & Igou, 2011a, 2012; Van Tilburg et al., 2013), and that political polarization can follow from threat (Greenberg et al., 1992; Greenberg & Jonas, 2003; McGregor et al., 2010). Related research on political conservatism suggests that in addition to polarization effects, conservative political orientations can yield palliative benefits (e.g., Jost et al., 2004; Jost, Federico, & Napier, 2009; Napier & Jost, 2008). Specifically, the strong focus on order, stability, and structure particularly present in

conservative ideologies offers aid in cases of uncertainty and threat (Jost et al., 2003). Consistently, boredom functions as a threat to one's meaning in life (e.g., Van Tilburg & Igou, 2011, 2012, 2013a, 2013b); however, boredom is characterized by *high* levels of certainty and control, at least in relation to people's evaluation of their current circumstances. That is to say, bored people have a clear understanding and overview of that is going on relative to various other emotions (Smith & Ellsworth, 1985).

Within the present theorizing, the 'meaning' that could be harnessed through political orientations has been primarily attributed to the epistemic value of these ideologies (Van Tilburg & Igou, 2013b). Specifically, by offering perspectives on how society should be organized, political ideologies give people a meaningful framework for making sense of the world. In addition to the meaning offered in political orientations from this perspective, it is likely that a sense of meaningfulness is also fostered by social identification processes and behavior associated with affiliating or feeling part of distinct political ideologies. For example, Castano, Yzerbyt, PaSamoni, and Sacchi, (2002) stress the relevance of social identification as source of meaning when faced with existential threats (see also Castano, Yzerbyt, & PaSamino, 2004; Maher, Van Tilburg, & Van den Tol, 2013). Indeed, boredom fosters valuation of ingroups as meaning-regulation attempt (Van Tilburg & Igou, 2011a) and although not specifically examined in the current series of studies, such identification processes may well be part of the mediating existential process.

One of boredom's hallmarks is low arousal/challenge/stimulation, which in turn attracts those who are bored towards more arousing activities (e.g., Zuckerman, 1971). Importantly, however, this 'arousal' seeking unlikely operates in a vacuum: Boredom simultaneously triggers a search for meaningful, interesting, novel, valuable, and rewarding activities (e.g., Leary Rogers, Canfield, & Coe, 1986; Van Tilburg & Igou, 2012). Accordingly, we suspect that the arousal seeking behavior that boredom triggers is typically 'channeled' into courses of action that are also meaningful or interesting to the individual, provided that such opportunities exist.

Although experimental tests of this proposed arousal \times meaning search process have not yet been conducted, this interpretation resonates with observations by others. For

example, in context of pathological gambling—a correlate of boredom that is often attributed to sensation seeking (Blaszczynski, McConaghy, & Franklova, 1990)—Barbalet (1999) argued that “By focusing their involvement on the positive attributes of betting ‘skill’ or ‘luck’, the gambler constructs a meaning over otherwise empty time.” (p. 642). Relatedly, boredom’s association with aggression, an association that is typically (partly) explained in terms of sensation seeking (e.g., Dahlen et al., 2004), is also mediated by a boredom-induced search for meaning (Van Tilburg & Igou, 2015), perhaps because some forms of aggression serve also a sense of meaningfulness (e.g., outgroup derogation, Van Tilburg & Igou, 2011a).

In the present research we focused on the search for meaning connecting boredom to political orientations. Yet, as discussed above, boredom also distinguishes itself from other affective states based on the search for challenge and sensation (Dahlen et al., 2004; Van Tilburg & Igou, 2012; Vodanovich, 2003). That is, although behavior resulting from other affective states such as anger or frustration may result in facing challenges as an unintentional byproduct (e.g., when ending up in a fight), people who experience boredom are explicitly *looking* for ways to increase challenge. Possibly, there may be an element of challenge or excitement offered by strong commitment to political orientations, for example within political activism. Speculatively, such political behavior may be a particularly strongly affected by boredom if they allow the pursuit of both meaning as well as challenge. In the present research we superficially explored if high/low arousal states that (negatively) correlated with boredom (e.g., excitement, alertness), were related to political extremity but did not find support for this possibility (see Footnotes 5 & 6). However, we encourage more exhaustive research to examine this potential complementary process.

Do our results suggest that the more boring a society is, the more extreme the political opinions of its members will be? Although, attempts have been made to associate boredom in societies with political orientations or activities (e.g., Fromm, 1973), our results can at best only help in generating ideas for such a general relationship, and we are not aware of any recent empirical research that has successfully addressed the relationship of societal boredom an political orientations or extremity, respectively. Speculatively, societies that allow for meaningful activities may provide buffers that link boredom to political orientations and

extremity. Future research needs to critically and empirically examine these ideas in more detail.

It should be noted that the operationalization of political orientations as left-wing/liberal versus right-wing/conservative as adopted in our studies may be further specified in follow-up research. Although this categorization was used in much prior research (e.g., Jost et al., 2003, 2004), there evidently are more subtle distinctions within these categorizations. By initially focusing on the perhaps somewhat simplistic political orientations of “left-wing/liberal” and “right-wing/conservative” we hope to set the stage for future research on the dynamics within specific political beliefs.

Conclusion

Boredom puts people on edge: It makes them seek engagements that are challenging, exciting, and that offer a sense of purpose (Barbalet, 1999; Csikszentmihalyi, 1990; Sansone et al., 1992; Smith et al., 2009; Van Tilburg & Igou, 2012). Political ideologies can aid this existential quest (Greenberg et al., 1992; Greenberg & Jonas, 2003). Consequently, we proposed that boredom is associated with, and leads to, the endorsement of extreme political orientations. Three studies confirmed this hypothesis, as well as the proposed mediating role of the search for meaning. Together, these findings indicate that boredom indeed draws people closer to political extremes.

References

- Barbalet, J. M. (1999). Boredom and social meaning. *British Journal of Sociology*, 50, 631-646. doi: 10.1111/j.1468-4446.1999.00631.x
- Baumeister, R. F. (1991). *Meaning of life*. New York: Guilford.
- Becker, E. (1971). *The birth and death of meaning* (2nd ed). New York, NY: Free Press.
- Blaszczynski, A., McConaghy, N., & Frankova, A. (1990). Boredom proneness in pathological gambling. *Psychological Reports*, 67, 35-42. doi: 10.2466/pr0.1990.67.1.35
- Brandt, M. J., Evans, A. M., & Crawford, J. T. (2015). The unthinking or confident extremist? Political extremists are more likely than moderates to reject experimenter-generated anchors. *Psychological Science*, 26, 189-202. doi: 10.1177/0956797614559730
- Cacioppo, J. T., Petty, R. E., & Feng Kao, C. (1984). The efficient assessment of need for cognition. *Journal of personality assessment*, 48, 306-307.
- Case, T. I., & Williams, K. D. (2004). Ostracism: A metaphor for death. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Ed.), *Handbook of experimental existential psychology* (pp. 336-351). New York: Guilford Press.
- Castano, E., Leidner, B., Bonacossa, A., Nikkah, J., Perrulli, R., Spencer, B., & Humphrey, N. (2011). Ideology, fear of death, and death anxiety. *Political Psychology*, 32, 601-621. doi: 10.1111/j.1467-9221.2011.00822.x
- Castano, E., Yzerbyt, V., & PaSamino, M.-P. (2004). Transcending oneself through social identification. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), *Handbook of experimental existential psychology* (pp. 305-321). New York: Guilford Press.
- Castano, E., Yzerbyt, V., PaSamoni, M.-P., & Sacchi, S. (2002). I belong therefore I exist: Ingroup identification, ingroup entitativity, and ingroup bias. *Personality and Social Psychology Bulletin*, 28, 135-143. doi: 10.1177/0146167202282001
- Crawford, J. T., & Pilanski, J. M. (2014). Political intolerance, right and left. *Political Psychology*, 35, 841-851. doi: 10.1111/j.1467-9221.2012.00926.x

- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper and Row.
- Dahlen, E. R., Martin, R. C., Ragan, K., & Kuhlman, M. M. (2004). Boredom proneness in anger and aggression: Effects of impulsiveness and sensation seeking. *Personality and Individual Differences*, 37, 1615-1627. doi:10.1016/j.paid.2004.02.016
- Eastwood, J. D., Cavaliere, C., Fahlman, S. A., & Eastwood, A. E. (2007). A desire for desires: Boredom and its relation to alexithymia. *Personality and Individual Differences*, 42, 1035-1045. doi:10.1016/j.paid.2006.08.027
- Fahlman, S. A., Marcer, K. B., Gaskocski, P., Eastwood, A. E., & Eastwood, J. D. (2009). Does a lack of life meaning cause boredom? Results from psychometric, longitudinal, and experimental analyses. *Journal of Social and Clinical Psychology*, 28, 307-340. doi: 10.1521/jscp.2009.28.3.307
- Farmer, R., & Sundberg, N. D. (1986). Boredom proneness—The development and correlates of a new scale. *Journal of Personality Assessment*, 50, 4-17. doi: 10.1207/s15327752jpa5001_2
- Fernbach, P. M., Rogers, T., Fox, C. R., & Sloman, S. A. (2013). Political extremism is supported by an illusion of understanding. *Psychological Science*, 24, 939-946. doi: 10.1177/0956797612464058
- Fromm, E. (1941). *Escape from freedom*. New York, NY: Holt, Rinehardt, & Winston.
- Fromm, E. (1947). *Man for himself*. New York, NY: Holt, Rinehardt, & Winston
- Fromm, E. (1973). *Anatomy of human destructiveness*. New York, NY: Holt, Rinehardt, & Winston.
- Greenberg, J., & Jonas, E. (2003). Psychological motives and political orientation—the left, the right, and the rigid: Comment on Jost et al. (2003). *Psychological Bulletin*, 129, 376-382. doi: 10.1037/0033-2909.129.3.376
- Greenberg, J., Koole, S. L., & Pyszczynski, T. (2004). *Handbook of experimental existential psychology*. New York: Guilford Press.

- Greenberg, J., Pyszczynski, T., & Solomon, S. (1986). The causes and consequences of a need for self-esteem: A terror management theory. In R. F. Baumeister (Ed.), *Public self and private self* (pp. 189–212). New York: Springer-Verlag.
- Greenberg, J., Pyszczynski, T., & Solomon, S. (1997). Terror management theory of self-esteem and cultural worldviews: Empirical assessments and conceptual refinements. In P. M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 29, pp. 61–141). San Diego: Academic Press.
- Greenberg, J., Simon, L., Pyszczynski, T., Solomon, S., & Chatel, D. (1992). Terror management and tolerance: Does mortality salience always intensify negative reactions to others who threaten one's worldview? *Journal of personality and social Psychology*, 63, 212-220. doi: 10.1037/0022-3514.63.2.212
- Hart, J. (2014). Toward an Integrative Theory of Psychological Defense. *Perspectives on Psychological Science*, 9, 19-39. doi: 10.1177/1745691613506018
- Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408-420. doi: 10.1080/03637750903310360
- Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from <http://www.afhayes.com/public/process2012.pdf>
- Heine, J. S., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review*, 10, 88-110. doi: 10.1207/s15327957pspr1002_1
- Hogg, M. A., Kruglanski, A. W., & Bos, K. (2013). Uncertainty and the roots of extremism. *Journal of Social Issues*, 69, 407-418. doi: 10.1111/josi.12021
- Hogg, M. A., Meehan, C., Farquharson, J. (2010). The solace of radicalism: Self-uncertainty and group identification in the face of threat. *Journal of Experimental Social Psychology*, 46, 1061-1066. doi: 10.1016/j.jesp.2010.05.005

- Jost, J. T., Fitzsimons, G., & Kay, A. C. (2004). The ideological animal: A system justification view. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Ed.), *Handbook of experimental existential psychology* (pp. 263-283). New York, NY: Guilford Press.
- Jost, J. T., Glaser, J., Kruglanski, A. W., & Sulloway, F. J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129, 339–375. doi: 10.1037/0033-2909.129.3.339
- Juhl, J., Routledge, C., Arndt, J., Sedikides, C., & Wildschut, T. (2010). Fighting the future with the past: Nostalgia buffers existential threat. *Journal of Research in Personality*, 44, 309-314. doi:10.1016/j.jrp.2010.02.006
- Kruglanski, A. W., Pierro, A., Mannetti, L., & DeGrada, E. (2006). Groups as epistemic providers: Need for closure and the unfolding of group-centrism. *Psychological Review*, 113, 84–100. doi: 10.1037/0033-295X.113.1.84
- Landau, M. J., Solomon, S., Greenberg, J., Cohen, F., Pyszczynski, T., Arndt, J., Miller, C. H., Ogilvie, D. M., & Cook, A. (2004). Deliver us from evil: The effects of mortality salience and reminders of 9/11 on support for President George W. Bush. *Personality and Social Psychology Bulletin*, 30, 1136-1150. doi: 10.1177/0146167204267988
- Leary, M. R., Rogers, P. A., Canfield, R. W., & Coe, C. (1986). Boredom in interpersonal encounters: Antecedents and social implications. *Journal of Personality and Social Psychology*, 51, 968-975. doi: 10.1037/0022-3514.51.5.968
- Leong, F. T., & Schneller, G. R. (1993). Boredom proneness: Temperamental and cognitive components. *Personality and Individual Differences*, 14, 233-239. doi:10.1016/0191-8869(93)90193-7
- London, H., & Schubert, D. S. P. (1972). Increase of autonomic arousal by boredom. *Journal of Abnormal Psychology*, 80, 29-36. doi: 10.1037/h0033311
- McGregor, I., Nash, K., Mann, N., & Phillips, C. E. (2010). Anxious uncertainty and reactive approach motivation (RAM). *Journal of Personality and Social Psychology*, 99, 133-147. doi: 10.1037/a0019701

- McGregor, I., Prentice, M., & Nash, K. (2013). Anxious uncertainty and reactive approach motivation (RAM) for religious, idealistic, and lifestyle extremes. *Journal of Social Issues, 69*, 537-563. doi: 10.1111/josi.12028
- MacKinnon, A., Jorm, A. F., Christensen, H., Korten, A. E., Jacomb, P. A., & Rodgers, B. (1999). A short form of the positive and negative affect schedule: Evaluation of factorial validity and invariance accross demographic variables in a community sample. *Personality and Individual Differences, 27*, 405-416. doi:10.1016/S0191-8869(98)00251-7
- Maher, P. J., Van Tilburg, W. A. P., & Van den Tol, A. J. M. (2013). Meaning in music: Deviations from expectations in music prompt outgroup derogation. *European Journal of Social Psychology, 43*, 449-454. doi:10.1002/ejsp.1969
- Mikulas, W. L., & Vodanovich, S. J. (1993). The essence of boredom. *The Psychological Record, 43*, 3-12
- Moore, D., & Schultz, N. R. (1983). Loneliness at adolescence: Correlates, attributions, and coping. *Journal of Youth and Adolescence, 12*, 95-100.
- Moynihan, A. B., Van Tilburg, W. A. P., Igou, E. R., Wisman, A., Donnelly, A. E., & Mulcaire, J. B. (2015). Eaten up by boredom: consuming food to escape awareness of the bored self. *Frontiers in psychology, 6*. doi: 10.3389/fpsyg.2015.00369
- Napier, J. L., & Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science, 19*, 565-572. doi: 10.1111/j.1467-9280.2008.02124.x
- Nash, K., McGregor, I., & Prentice, M. (2011). Threat and defense as goal regulation: from implicit goal conflict to anxious uncertainty, reactive approach motivation, and ideological extremism. *Journal of Personality and Social Psychology, 101*, 1291. doi: 10.1037/a0025944
- Nett, U. E., Goetz, T., & Hall, N. C. (2011). Coping with boredom in school: An experience sampling perspective. *Contemporary Educational Psychology, 36*, 49-59. doi:10.1016/j.cedpsych.2010.10.003

- Neuberg, S. L., & Newsom, J. T. (1993). Personal need for structure: Individual differences in the desire for simpler structure. *Journal of Personality and Social Psychology*, 65, 113. doi: 10.1037/0022-3514.65.1.113
- Norenzayan, A., Dar-Nimrod, I., Hansen, I. G., & Proulx, T. (2009). Mortality salience and religion: divergent effects on the defense of cultural worldviews for the religious and the non-religious. *European Journal of Social Psychology*, 39, 101-113. doi: 10.1002/ejsp.482
- Proulx, T., & Heine, S. J. (2006). Death and black diamonds: Meaning, mortality, and the meaning maintenance model. *Psychological Inquiry*, 17, 309–318. doi: 10.1080/10478400701366985
- Proulx, T., & Major, B. (2013). A raw deal: Heightened liberalism following exposure to anomalous playing cards. *Journal of Social Issues*, 69, 455-472. doi: 10.1111/josi.12024
- Proulx, T., Inzlicht, M., & Harmon-Jones, E. (2012). Understanding all inconsistency compensation as a palliative response to violated expectations. *Trends in Cognitive Sciences*, 16, 285-291. doi:10.1016/j.tics.2012.04.002
- Pyszczynski, T., Abdollahi, A., Solomon, S., Greenberg, J., Cohen, F., & Weise, D. (2006). Mortality salience, martyrdom, and military might: The great Satan versus the axis of evil. *Personality and Social Psychology Bulletin*, 32, 525-537. doi: 10.1177/0146167205282157
- Pyszczynski, T., Greenberg, J., & Koole, S. L. (2004). Experimental existential psychology: Exploring the human confrontation with reality. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Ed.), *Handbook of experimental existential psychology* (pp. 3–12). New York: Guilford Press.
- Routledge, C., Arndt, J., Wildschut, T., Sedikides, C., Hart, C. M. Juhl, J., Vingerhoets, A. J. J. M., & Schlotz, W. (2011). The past makes the present meaningful: Nostalgia as an existential resource. *Journal of Personality and Social Psychology*, 3, 638-652. doi: 10.1037/a0024292

- Rupp, D. T., & Vodanovich, S. J. (1997). The role of boredom proneness in self-reported anger and aggression. *Journal of Social Behavior and Personality*, 12, 925-936.
- Russell, J. A., Lewicka, M., & Niit, T. (1989). A cross-cultural study of a circumplex model of affect. *Journal of Personality and Social Psychology*, 57, 848.
- Sansone, C., Weir, C., Harpster, L., & Morgan, C. (1992). Once a boring task always a boring task? Interest as a self-regulatory strategy. *Journal of Personality and Social Psychology*, 63, 379-390. doi: 10.1037/0022-3514.63.3.379
- Schaller, M., Boyd, C., Yohannes, J., & O'Brien, N. (1995). The prejudiced personality revisited: Personal need for structure and formation of erroneous group stereotypes. *Journal of Personality and Social Psychology*, 68, 544-555. doi: 10.1037/0022-3514.68.3.544
- Sedikides, C., Wildschut, T., & Baden, D. (2004). Nostalgia: Conceptual issues and existential functions. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Ed.), *Handbook of experimental existential psychology* (pp. 200-214). New York, NY: Guilford Press.
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, 48, 813-838. doi: 10.1037/0022-3514.48.4.813
- Smith, J. L., Wagaman, J., & Handley, I. M. (2009). Keeping it dull or making it fun: Task variation as a function of promotion versus prevention focus. *Motivation and Emotion*, 33, 150-160. doi: 10.1007/s11031-008-9118-9
- Smith, M. R., & Gordon, R. A. (1998). Personal need for structure and attitudes toward homosexuality. *Journal of Social Psychology*, 138, 83-87. doi: 10.1080/00224549809600355
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80-93. doi: 10.1037/0022-0167.53.1.80
- Toner, K., Leary, M., Asher, M. W., & Jongman-Sereno, K. P. (2013). Feeling superior is a bipartisan issue: Extremity (not direction) of political views predicts perceived belief superiority. *Psychological Science*, 24, 2454-2462. doi: 10.1177/0956797613494848

- Van den Bos, K. (2001). Uncertainty management: The influence of uncertainty salience on reactions to perceived procedural fairness. *Journal of Personality and Social Psychology*, 80, 931-941. doi: 10.1037/0022-3514.80.6.931
- Van den Bos, K. (2004). An existentialist approach to the social psychology of fairness: The influence of mortality and uncertainty salience on reactions to fair and unfair events. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Ed.), *Handbook of experimental existential psychology* (pp. 167-181). New York: Guilford Press.
- Van Prooijen, J.-W., Krouwel, A. P. M., & Pollet, T. (2015). Political extremism predicts belief in conspiracy theories. *Social Psychological and Personality Science*, 6, 570-578. doi: 10.1177/1948550614567356
- Van Tilburg, W. A. P., & Igou, E. R. (2011a). On boredom and social identity: A pragmatic meaning-regulation approach. *Personality and Social Psychology Bulletin*, 37, 1679-1691. doi: 10.1177/0146167211418530.
- Van Tilburg, W. A. P., & Igou, E. R. (2011b). On the meaningfulness of existence: When life salience boosts adherence to worldviews. *European Journal of Social Psychology*, 41, 740-750. doi: 10.1002/ejsp.819.
- Van Tilburg, W. A. P., & Igou, E. R. (2012). On boredom: Lack of challenge and meaning as distinct boredom experiences. *Motivation and Emotion*, 36, 181-194. doi: 10.1007/s11031-011-9234-9
- Van Tilburg, W. A. P., & Igou, E. R. (2013a). De zin van een verveeld bestaan. [The purpose of a bored existence]. *In-Mind Nederland*, 1.
- Van Tilburg, W. A. P., & Igou, E. R. (2013b). On the meaningfulness of behavior: An expectancy \times value approach. *Motivation and Emotion*, 37, 373-388. doi: 10.1007/s11031-012-9316-3.
- Van Tilburg, W. A. P., & Igou, E. R. (2015). *Bored to be wild: Search for meaning as mediator of the boredom-aggression link*. Manuscript in preparation.
- Van Tilburg, W. A. P., Igou, E. R., & Sedikides, C. (2013). In search of meaningfulness: Nostalgia as an antidote to boredom. *Emotion*, 13, 450-461. doi: 10.1037/a0030442.

- Vodanovich, S. J. (2003). Psychometric properties of boredom: A review of the literature. *Journal of Psychology, 137*, 569-595. doi: 10.1080/00223980309600636
- Vodanovich, S. J., & Kass, S. J. (1990). A factor analytic study of the boredom proneness scale. *Journal of Personality Assessment, 55*, 115-123. doi: 10.1080/00223891.1990.9674051
- Vodanovich, S. J., Verner, K. M., & Gilbreide, T. V. (1991). Boredom proneness: Its relationship to positive and negative affect. *Psychological Report, 69*, 1139-1146. doi: 10.2466/pr0.1991.69.3f.1139
- Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C. (2006). Nostalgia: Content, triggers, functions. *Journal of Personality and Social Psychology, 91*, 975-993. doi: 10.1037/0022-3514.91.5.975
- Zuckerman, M. (1971). Dimensions of sensation seeking. *Journal of Consulting and Clinical Psychology, 36*, 45-52. doi: 10.1037/h0030478

Table 1

Correlations Between Variables (Study 2)

Measure	1.	2.	3.	4.	5.
1. Situational Boredom	-				
2. Intrinsic Boredom	.00	-			
3. Political Orientation	-.03	.02	-		
4. Positive Affect	-.10**	-.41***	.00	-	
5. Negative Affect	.13**	.11**	.02	-.16***	-
6. Political Extremity [†]	.12**	-.09*	-	.07*	-.01

Note: * $p < .05$, ** $p < .01$,

*** $p < .001$; [†] Associations with political extremity reflect partial correlations controlling for political orientation.

Table 2

Political Extremity by Proneness to Situational Boredom (Study 2).

Predictor	Model 1		Model 2	
	<i>B</i>	<i>p</i>	<i>B</i>	<i>p</i>
Situational Boredom	0.11	.001	0.12	.000
General Political Orientation	-0.45	.000	-0.46	.000
Intrinsic Boredom	-	-	-0.04	.302
Positive Affect	-	-	0.06	.065
Negative Affect	-	-	0.02	.471
Age	-	-	0.09	.005
Gender	-	-	-0.08	.056

Note: Variables listed under model 2 were added to model 1.

Table 3

Correlations Between Variables (Study 3)

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Situational Boredom	-								
2. Intrinsic Boredom	.19**	-							
3. Political Orientation	-.03	-.01	-						
4. Meaning search	.21***	.04	-.19**	-					
5. Meaning presence	-.39***	-.47***	.02	-.10	-				
6. Need for Structure	.02	.05	.11	-.09	.11	-			
7. Need for Cognition	-.08	-.35***	-.15*	.19**	.22***	-.21***	-		
8. Positive Affect	-.30***	-.47***	-.05	.05	.39***	-.19**	.31***	-	
9. Negative Affect	.20**	.27***	-.01	.06	-.23***	.16**	-.32***	-.31***	-
10. Political Extremity [†]	.14*	.16**	-	.15 [†]	-.20**	-.02	-.10 [†]	-.02	.08

Note: [†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$;

[†] Associations with political extremity reflect partial correlations controlling for political orientation.

Figure 1: *The impact of Manipulated Boredom on Political Orientation (Study 1)*

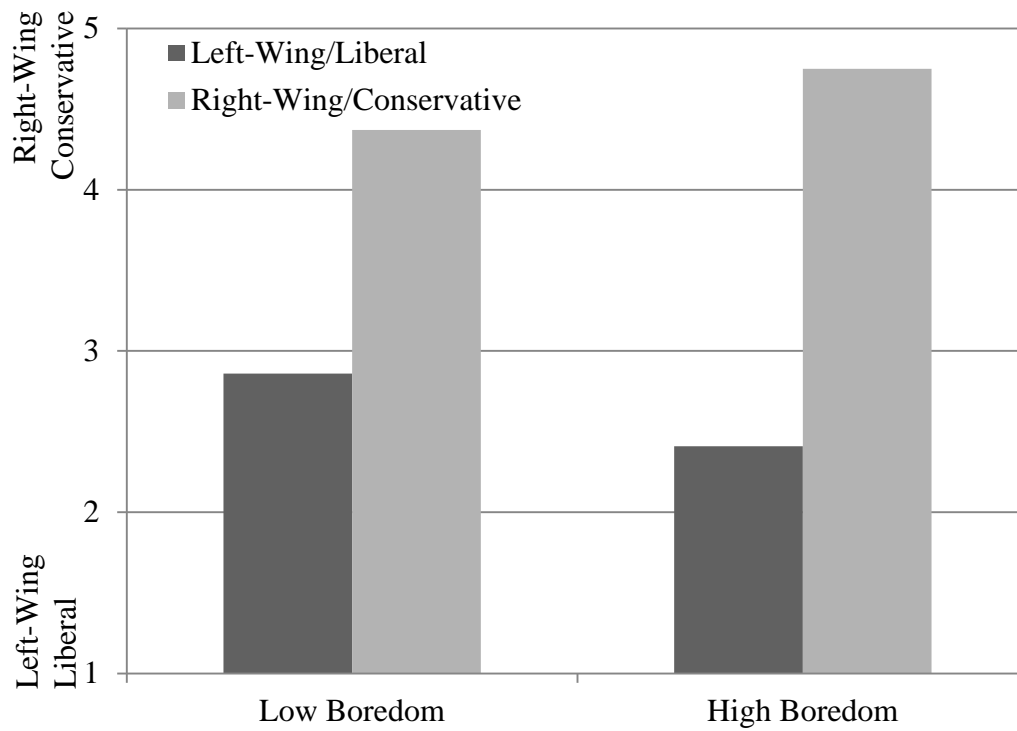
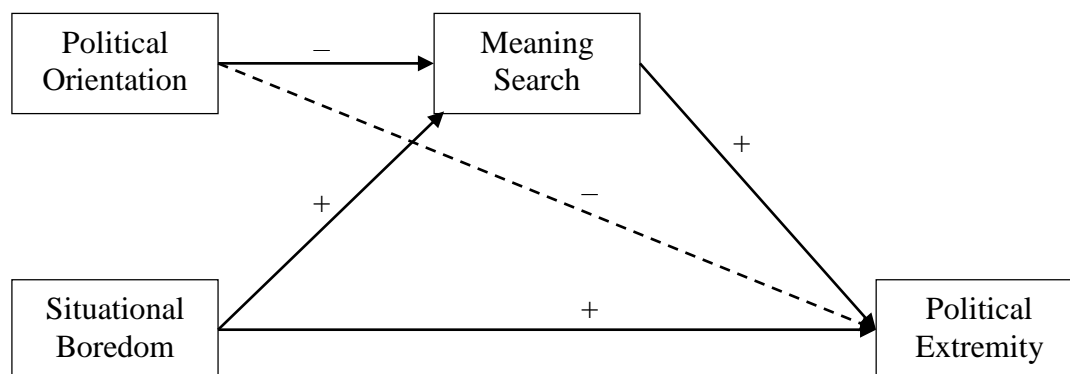


Figure 2: *Main Mediation Model on Meaning Search (Study 3).*

Note: + indicates a positive regression weight, – indicates negative regression weight; full arrows, as opposed to dotted ones, indicate a significant association at the $p < .05$ level.

Indirect effect of situational boredom on political extremity through meaning search estimated at $0.003 < B_{95} < 0.059$ (5,000 accelerated and bias-corrected bootstraps).